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Larry E. Henneman, Jr  
Henneman & Saunders  
714 W. MICHIGAN Avenue  
Three Rivers, MI 49093

EXAMINER

LUHRS, MICHAEL K

ART UNIT

PAPER NUMBER

2824

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/017,458

Applicant(s)

WANG, XIAOJUN

Examiner

Michael K. Luhrs

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4,6-13,23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) 14-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-13,23 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☒ Other: search updated.

## DETAILED ACTION

### *Drawings*

1. The corrected or substitute drawings were received on April 22, 2003. These drawings are approved.

### *Claim Objections*

2. Claims 1-13 are objected to since, in claim 1, line 4 states of "trimming a dummy fill pattern", yet one cannot actually trim the dummy fill pattern without having filled a dummy fill *area* with dummy fill *pattern*.
3. Claims 6 and 7 are objected to since there is antecedent dependency on a structural limitation in claim 1, namely the "alternative functional circuitry" in line 2 now being *selected*, should have been *selected* in claim 1.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 8-10 recite the limitation "dummy **metal** fill pattern" in line 2. There is insufficient antecedent basis for this limitation in the claim. There is no mention of the dummy **metal** fill pattern in claim 1.
6. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: in claim 1, *selecting* a dummy fill pattern. Explanation: since lines 5-6 read, "and wherein the dummy fill pattern is an example of an alternative functional circuitry", it is an obvious necessity that a method step be executed first in order to establish the dummy pattern as it stated. It is suggested that claim 1 steps include such instruction definitively, for example, replace line 6 with: --

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*selecting a dummy fill pattern of alternative functional circuitry.--* (notice that it is stated like this in claim 12) Therefore:

7. Claim 12 fails to further limit claim 1 that must have already made the selection to establish it as *wherein*. (at present, one must execute claim 12 in order to establish the claim 1, line 6, result.)

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Motoyama et. al. USPN 6,099,992. Motoyama et. al. teach margin area W, between active circuitry 21 and dummy region 22 in Fig. 5A, as described in lines 26-27 column 7; Motoyama et. al. add dummy pattern as a square repeating pattern that ends at the width W, of the margin, is thus trimmed at that location, results in the gap between area 22 and 21; with final overlay as shown in Fig. 5E.

Examiner disregards the limitation: “and wherein the dummy fill pattern is an example of an alternative functional circuitry” (per item 4 above) as a method limitation, being addressed, rather, in claim 12 rejection, where it has been expressed as an explicit method step.

Regarding claim 2, Motoyama et. al. teach that dummy area smaller than allowable it is removed as in Fig. 5D, removal of area 22e is removal of excess metal between steps b and c.

Regarding claim 3, region 22e is seen as a sliver of metal.

Regarding claim 4, Motoyama et. al.’s sliver is created by merging the dummy fill area with the dummy fill pattern, thus is also as, the margin area as it is removed from the dummy fill pattern, 22e is created; and subsequently removed in Fig. 5D.

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Regarding claim 11, Motoyama et. al. teach of a selected fill metal pattern of square lattice, line 31, column 7.

Regarding claim 12, Motoyama et. al. teach of a selected fill metal pattern of square lattice, a square being alternative to the metal lines and rectangular areas depicted as '21' in Fig. 5A.

Regarding claim 13, Motoyama et. al. teach of "growing the margin by a width W off the functional circuitry, line 28, column 7.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoyama et. al..


Motoyama et. al. selects and fills pattern square lattice, discussed above. Motoyama et. al. fail to teach the array. Motoyama et. al. teach of a circuit pattern line 33, column 1. The problem that the common knowledge in the art was concerned with was also known in the art of Motoyama et. al. since LCOS array is circuitry having undulations. It was commonly known to those of ordinary skill in the art that the LCOS array would benefit from the dummy circuitry for the purpose of leveling the layers and helping reduce microloading. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate this common knowledge of applying the method for this purpose to an array, as discussed above.

Regarding claim 23, Motoyama et. al. teach the square lattice having partially filled areas i.e. the lattice surrounding is unfilled.

**Conclusion**

**11.** The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nowak 4,916,514 dummy circuitry for planarity. Ushiku et. al. 5,032,890 teach dummy patterns. Cleaves et. al. 6,486,066 teach dummy pattern density and that if the circuitry are lines the dummy features are lines lines 60-63 column 4. Harvey 5,854,125 show various patterns Figs. 3A-C. Chrysostomides et. al. 6,441,469 teach that dummy components are as similar as possible to the components adjacent see claim 2. Juengling 6,448,591 teach dummy shapes. Sakurai et. al. 5,066,997 teach dummy lines for memory array. Eden et. al. 5,278,105 teach dummy features in theory dummy features can be any size and shape (line 43-44 column 5), can leave the whole area covered (line 45, column 5), similar in size and shape to the metal lines line 42 column 6, etc..

**12.** Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

 A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

**13.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael K. Luhrs whose telephone number is 703-305-2864. The examiner can normally be reached on M-F; 8:00 a.m. - 5:00 p.m. (other Fridays off)..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard T. Elms can be reached on 703-308-2816. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Michael K. Luhrs  
June 16, 2003



**RICHARD ELMS**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**